REMARKS

Claims 19-24 are currently pending in the present application.

Claims 19, 21 and 23 have been amended to specify that the first workpiece has a length-wise axis and that thermo-mechanical forces are applied to the first workpiece ***in a first direction such that a cross-sectional area of the first workpiece perpendicular to the length-wise axis is reduced*** to form a second workpiece, and that thermo-mechanical forces are applied to the second workpiece ***in a second direction such that a cross-sectional area of the second workpiece perpendicular to the length-wise axis is increased***. Support for the amendments to claims 19, 21 and 23 can be found in the Specification, for example, at page 6, line 15-24, page 7, lines 21-26 and in the Figures. The amendments made herein introduce no new matter. Additionally, a complete listing of all claims ever presented is set forth in accordance with 37 CFR §1.121(c)(1). Entry and consideration of the amendments made herein, in conjunction with the RCE submitted herewith, are respectfully requested.

Rejection Under 35 U.S.C. §112:

In the Office Action, the Examiner rejects 19-23 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Examiner also rejects claims 19-22 under 35 U.S.C. §112, second paragraph, as being indefinite. While not necessarily agreeing with the Examiner's rejections, or the arguments and contentions set forth in support thereof, Applicants have amended claims 19, 21 and 23 to remove reference to an "axis of symmetry" and to specify that cross-sectional area is reduced/increased relative to a length-wise axis of the workpiece. Applicants acknowledge that the axis of working is not necessarily of symmetry, but rather longitudinal or length-wise. Thus, the Examiner's rejections are moot. Withdrawal is respectfully requested.

Applicants submit that the claimed length-wise axis of the workpiece is supported by the Specification, particularly in the Figures, such as in Figure 1, referencing extrusion along

the length "L" of a billet/ingot, such that the cross-sectional diameter perpendicular to the length-wise axis is reduced. (*See*, the Specification, p. 6, lines 15-24 and Fig. 1). Similarly, upset or hammer forging in a different direction, *along the same axis*, such that the cross-sectional area is increased is clearly supported. (*See*, the Specification, p. 7, lines 13-26 and Figs. 2(a) & 2(b)). Applicants respectfully submit that the pending claims comply with 35 U.S.C. §112.

Rejections Under 35 U.S.C. §103:

In the Office Action, the Examiner rejects claims 19 and 23 as being obvious over U.S. Patent Application Publication No. 2001/0001401 of Segal ("Segal"), in view of U.S. Patent No. 5,868,876 of Bianco, *et al.* ("Bianco"). Additionally, the Examiner rejects claims 20 and 21 under 35 U.S.C. §103(a), as being obvious over U.S. Patent No. 3,622,824 of Atlee ("Atlee"), in view of Segal and Bianco. Finally, the Examiner rejects claims 22 and 24 as being obvious over Atlee, in view of Segal, Bianco and U.S. Patent No. 3,136,907 of Kieffer, *et al.* ("Kieffer").

As discussed above, Applicants have amended independent claims 19, 21 and 23 to clarify that the thermomechanical workings are carried out along the same length-wise axis, first in a direction that decreases cross-sectional area and then along the same axis but in a direction that increases cross-sectional area. Applicants respectfully submit that the Examiner's rejections are moot in view of the clarifying amendments made herein. However, in the event the Examiner is inclined to apply similar rejections against the claims as amended herein, Applicants respectfully traverse any such potential rejections and the arguments and contentions set forth in the final Office Action for at least the following reasons.

In contrast to the processes and articles described in the cited prior art references, Applicants' claimed invention is directed to cross-directionally worked molybdenum plates wherein the molybdenum material is treated by subjecting the workpiece to two or more thermomechanical workings carried out ***along the same length-wise axis***, first in a direction that

decreases cross-sectional area and then along the same axis but in a direction that increases cross-sectional area.

As clarified by the amendments made herein, it must be recognized that the thermal mechanical forces applied in the first and second thermal treatment steps of Applicants' inventive process, while in directions different from one another, ***are along the same axis***. This can most readily be seen from a review of the Figures of Applicants' Specification. Particularly, with reference to Figures 2(a) and 2(b), and the accompanying text describing said Figures at page 7, lines 15-22 of the Specification, it can be seen that the workpiece (*e.g.*, reference numeral 10) is compressed in a direction which is different than the original direction of extrusion shown in Figure 1, but which is importantly ***along the same axis*** of the original extrusion. The first thermomechanical forces are applied in a direction along the length-wise axis such that cross-sectional area is ***decreased***, and the second thermomechanical forces are applied in a different direction along the same axis such that cross-sectional area is ***increased***.

As discussed in Applicants' Specification, for example, at page 8, lines 21-27, the plates made in accordance with Applicants' invention have high temperature properties including, for example, radial strength of at least about 60 ksi upon exposure to a temperature of 1600° C. As discussed in the Background section of Applicants' Specification, for example, at page 2, lines 11-14, known processes for making such x-ray plate targets provide products with poor uniform grain size properties and/or poor temperature properties. Thus, the efficient production of such x-ray targets exhibiting both uniform grain size and improved temperature properties would be advantageous. As noted in Applicants' Specification, the processes described therein for producing the x-ray target plates of Applicants' invention provide targets which exhibit both uniform grain size and the significantly improved radial strength properties at high temperatures.

As Segal clearly indicates the use of multiple (*i.e.*, "two or four") ***perpendicular*** rolling operations for the express purpose of spreading the workpiece out into a circular shape,

and the rolling is carried out in a direction along an axis perpendicular to the initial upset forging, it cannot reasonably be said that Segal teaches or suggests the processes described in Applicants' Specification for making the claimed x-ray target plates. In other words, the multiple mutually perpendicular processes of Segal do not teach or suggest Applicants' process wherein the first and second thermal treatment are carried out in different directions ***along the same length-wise axis***.

Moreover, given the lack of any teaching in Segal or the secondary references as to insuring that such multiple thermal treatments are carried out in a direction along the same axis, it cannot reasonably be said that one of ordinary skill in the art would be motivated to make such a change, much less with any expectation of improving the radial strength of the resulting plates.

Accordingly, Applicants respectfully submit that the cited combinations of references do not satisfy the criteria necessary to establish *prima facie* obviousness. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested

Conclusion:

Applicants respectfully submit that the pending claims patentably distinguish over the cited references. Accordingly, reconsideration, withdrawal of the rejections and a Notice of Allowance are respectfully requested.

Respectfully submitted,

JAMES DAILY, *et al.*

October 21, 2010
(Date)

By: _____

AARON R. ETTELMAN
Registration No. 42,516
CONNOLLY BOVE LODGE & HUTZ LLP
1007 North Orange Street
P.O. Box 2207
Wilmington, Delaware 19899
(302) 888-6435
(302) 658-5614
aettelman@cblh.com